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A METHOD OF PURIFYING CONTAMINATED OIL FROM PARTICLES SUSPENDED
IN THE OIL IN A CENTRIFUGAL SEPARATOR

Field of the Invention

[0001] The present invention relates to a method of purifying contaminated oil from particles suspended in the oil by means of a liquid separation aid, which has a density larger than that of the oil. The separation aid is dispersed in the contaminated oil in order to make the particles more easily separable from the oil. The contaminated oil and the liquid separation aid are supplied into a separation chamber of a rotating centrifugal rotor. The liquid separation aid and the particles are separated from the oil by centrifugal force. The purified oil is discharged from the separation chamber through a central light phase outlet. The separated particles and the liquid separation aid are discharged from the separation chamber through a heavy phase outlet situated radially outside of the light phase outlet.

Background of the Invention

[0002] Mineral oils (also half- and full-synthetic) as well as animal oils and vegetable oils, with or without additives, are used widely in industry for various purposes, such as lubrication, cooling and insulation. During such use the oils commonly become contaminated by different kinds of particles. Depending on the composition and the particular use different methods for regeneration of contaminated oils are used.

[0003] Historically, contaminated oils have been filtered in filter beds containing clay, bleaching earth or kieselguhr.

[0004] Purification of mineral oils from suspended particles is described for example in US 4 094 770. According to this patent the particles that are not filtrated away are removed by addition of an agglomerating aid in the form of a mixture of acetone and 2-butanone. The agglomerated particles settle and may be removed from the oil. A finishing distillation step is necessary in order to purify the oil from the agglomerating aid.

[0005] US 4 491 515 describes purification of lubricating oil which has been used in vehicles. The oil, which may contain many kinds of contaminants, is purified by addition of a compound containing a carbonyl group (ketone) mixed with a water-containing electrolyte, for example an inorganic or organic acid. When this acid has been added to the oil, there is relatively rapidly obtained an agglomeration of particulate contaminants that may be removed

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